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Acquisition

COCKPIT WORKING GROUPS

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This instruction implements AFD 63-1, *Acquisition System*, by setting the objectives, membership, and responsibilities of cockpit working groups (CWG). CWGs include acquisition personnel and operational aircrews in cockpit design and configuration at the earliest stages of development and modification. The CWG ensures that decisions affecting the cockpit account for human factors and operational environment. This instruction applies to all Air Force personnel who evaluate cockpits in manned aerospace systems.

SUMMARY OF REVISIONS

This is the initial publication of AFI 63-112 which aligns this instruction with AFD 63-1. This instruction updates, clarifies, and streamlines previous CWG guidance.

1. Terms Explained:

- 1.1. Cockpit.** Space in an aircraft for pilot, or pilots and crew, that include crew stations in addition to the flight deck.
- 1.2. Cockpit Evaluation Team (CET).** Group of experienced aircraft operators who participate in CWG design studies and simulations. Provide subjective inputs to the CWG on the proposed design.
- 1.3. Cockpit Working Group (CWG).** Team comprised of acquisition personnel and experienced aircraft operators that ensure human factors are considered in the cockpit design. Appointed by the program director.
- 1.4. Cockpit Working Group Handbook.** Helps program office personnel implement a CWG.
- 1.5. Cockpit Working Group Training Program.** Educates CWG members on their responsibilities, the current research and development in cockpits, human factors issues, cockpit standards, and other CWG lessons learned.

1.6. Lead Commands. Major command (primary customer) with primary responsibility for the weapon system. Other operating commands support the lead command on request.

1.7. Program Director. Chief manager and decisionmaking authority of the system program office acquiring one or more Air Force systems.

1.8. Substantial Cockpit Modification. Cockpit modifications that change aircrew operational procedures or mission-oriented operations of the aircraft (pilot-vehicle interface).

2. Establishing a CWG. Establish a CWG for every Air Force manned aerospace system that involves cockpit development, or that substantially modifies a cockpit. The CWG is responsible to the program director via the CWG chairperson.

3. CWG Objectives:

- Provide the program director with technical guidance and a current operational perspective to help evaluate the operational effectiveness of the contractor's proposed cockpit designs.
- Help the contractor clarify operational tasks and critical mission elements, and evaluate simulated mission scenarios.
- Provide formal lead command liaison with the system program office and prime contractor in the earliest stages of the cockpit design process.
- Ensure the use of simulations throughout the entire cockpit design process.
- Provide an audit trail for decisions on cockpit issues.

4. Membership. CWGs include members and advisors:

4.1. Members make design recommendations on cockpits to the CWG chairperson. Members need a broad understanding of their organization and its concerns. Appoint members for at least 2 years to guarantee continuity of critical information.

4.1.1. Members include:

- The CWG chairperson (selected by the Program Director).
- Crew station or human factors engineering representative.
- Senior aircrew representatives from the requirements and the operations offices of the lead command.
- An Instrument Flight Center (IFC) representative.
- An Air Force Flight Test Center (AFFTC) representative.
- An Air Force Operational Test and Evaluation Center (AFOTEC) representative.

4.1.2. If the program director agrees, the CWG chairperson can also select other members. For joint acquisition programs, the CWG includes members from the lead operating command of all involved services.

4.2. Advisors identify cockpit design issues and provide technical input that members can use as the basis for recommendations. Representatives from the Air Force Safety Agency, Air Force Materiel Command (AFMC), test centers, and other agencies advise as needed. The chairperson can limit attendance at CWG meetings.

5. Responsibilities. Through the system program office, the CWG offers a unified government position to the contractor. The CWG bases its position on members' collective experience and technical knowledge. Members of the group offer no individual opinions. The CWG must get approval from the Program Director before directing the contractor in any way that affects the contract, schedule, or cost.

5.1. Program Management. The following responsibilities apply to all manned aerospace programs involving cockpit development or substantial cockpit modification and are the responsibility of the Program Director:

- Establishes a CWG as early as possible.
- Appoints a CWG chairperson from the system program office.
- Contacts the Crew Systems Branch of Aeronautical Systems Center, Directorate, Integrated Engineering and Technical Management (ASC/ENSC) for information on how to establish and organize a CWG. The CWG Handbook provides detailed information.
- Writes a specific CWG charter for the program under development. Refer to the CWG Handbook for guidance.
- Reviews CWG training materials so that CWG members receive appropriate training before they begin working on the project.
- Reviews and evaluates CWG recommendations.
- Maintains a database of CWG issues and design decisions to track the cockpit design changes.
- Keeps up-to-date, accurate CWG meeting records.
- Provides the simulation and data analysis for the cockpit design.
- Establishes a CET to support the CWG.
- Appoints, if needed, additional CWG members and advisors.

5.2. Lead Command:

- Appoints a senior aircrew member to represent the requirements office, and a senior aircrew member to represent the operations office at CWG meetings.
- Provides the CWG with an expert subjective analysis of the cockpit design.
- Clarifies the critical elements of the project to the contractor.
- Evaluates mission scenarios for simulator exercises.
- For each aircrew position, assigns aircrew members as CET members that represent the aircraft's current or future operator community.
- Appoints additional advisors, if needed.
- Uses lessons learned from flight testing.

5.3. AFMC:

- Appoints engineers and scientists who know cockpit designs and human factors principles to serve on the CWG.
- Evaluates proposed cockpit designs for human factors issues that affect system performance and operation.
- Provides CWG training for the chairperson, members, and advisors. Trains them before they have to participate in CWG meetings.

- Shares information with CWG members and advisors concerning standardization requirements, procedures, tools, and techniques for cockpit evaluation .
- Maintains CWG databases to store accumulated information and to allow various CWGs to standardize data.
- Revises the CWG Handbook.
- Appoints a qualified senior aircrew member as a flight test member at CWG meetings to evaluate proposed cockpit designs for functionality.
- Appoints aircrew members with flight test experience as CET members to support the CWG.

5.4. AFOTEC:

- Appoints a qualified AFOTEC senior aircrew member as a CWG member.
- Evaluates proposed cockpit designs for functionality.
- Appoints aircrew members with flight test experience to the CET.
- Assesses lessons learned from flight testing.

5.5. IFC:

- Appoints an instrument flying expert as a CWG member.
- Evaluates proposed cockpit designs for Air Force instrument flying requirements.
- Appoints additional advisors for instrument flight expertise.

5.6. AFFTC:

- Appoints a qualified AFFTC senior aircrew member as a CWG member.
- Evaluates proposed cockpit designs for functionality.
- Appoints aircrew members with flight test experience to the CET.
- Assesses lessons learned from flight testing.

5.7. Advisor Organizations' Responsibilities:

- Appoints appropriate personnel as advisors to the CWG.
- Evaluates proposed cockpit designs in terms of the particular concerns of the participating organization.

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